Section 3.2
Air Quality

This section characterizes existing air quality in the project area, includes a summary of applicable air quality regulations, and analyzes potential air quality impacts associated with the proposed project. Air quality impacts were assessed in accordance with methodologies recommended by the California Air Resources Board (CARB) and the San Diego Air Pollution Control District (SDAPCD).

This section is based on technical data presented in the *Air Quality Assessment* prepared by Ldn Consulting, Inc. (2020a; see Appendix C) and *Transportation Impact Study*, prepared by Chen Ryan and Associates (2020a, see Appendix O-1). Analysis in this section also draws upon data in the *City of Encinitas General Plan* (1991) and the *City of Encinitas 2013-2021 Housing Element Update Environmental Assessment* (2018a). Third-party technical reports were peer reviewed by Michael Baker International and the City of Encinitas.

ENVIRONMENTAL SETTING

Air quality and dispersion of air pollution in an area is determined by such natural factors as topography, meteorology, and climate, coupled with atmospheric stability. The factors affecting the dispersion of air pollution with respect to the air basin are discussed below.

Topography

The topography in the San Diego Air Basin (SDAB) varies greatly, from beaches on the west to mountains and desert on the east. Much of the topography in between consists of mesa tops intersected by canyon areas. The region's topography influences air flow and the dispersal and movement of pollutants in the basin. The mountains to the east prevent air flow mixing and prohibit dispersal of pollutants in that direction.

Meteorology and Climate

Encinitas, like the rest of San Diego County's coastal area, has a Mediterranean climate characterized by warm, dry summers and mild, wet winters. The mean annual temperature in the City is 60 degrees Fahrenheit (°F). The average annual precipitation is 11 inches, falling primarily from November to April. Winter low temperatures in the City average about 54°F, and summer high temperatures average about 71°F. The average relative humidity is 69 percent and is based on the yearly average humidity at Lindbergh Field.

The dominant meteorological feature affecting the region is the Pacific high-pressure zone, which produces the prevailing westerly to northwesterly winds. These winds tend to blow pollutants away from the coast toward the inland areas. Consequently, air quality near the coast is generally

better than that at the base of the coastal mountain range. Most of the City consists of coastal plains, which lie adjacent to the Pacific Ocean and extend approximately 6 miles east of the Pacific Ocean. Because of its locational advantage, the westerly portion of the City has a mild climate with cool summers on the coast, where fog is common.

Fluctuations in the strength and pattern of winds from the Pacific high-pressure zone interacting with the daily local cycle produce periodic temperature inversions that influence the dispersal or containment of air pollutants in the SDAB. Beneath the inversion layer, pollutants become "trapped" as their ability to disperse diminishes. The prevailing westerly wind pattern is sometimes interrupted by regional Santa Ana conditions. A Santa Ana wind occurs when a strong high pressure system develops over the Nevada-Utah area and overcomes the prevailing westerly coastal winds, sending strong, steady, hot, dry northeasterly winds over the mountains and out to sea. Strong Santa Anas tend to blow pollutants out over the ocean, producing clear days inland. However, at the onset or during breakdown of these conditions or if the Santa Anas are weak, local air quality may be adversely affected.

Sensitive Receptors

Sensitive receptors are more susceptible to the effects of air pollution than the general population. Sensitive populations (sensitive receptors) in proximity to localized sources of toxics and carbon monoxide are of concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The nearest sensitive receptors are adjacent residences to the west of the project site and the Capri Elementary School located at 941 Capri Road (approximately 0.6 miles northwest of the project site).

Air Pollutants of Concern

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state laws. These regulated air pollutants are known as criteria air pollutants and are categorized into primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxide (NO_X), sulfur dioxide (SO_2), coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), lead, and fugitive dust are primary air pollutants. Of these, CO, SO_2, PM_{10}, and $PM_{2.5}$ are criteria pollutants. ROG and NO_X are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere (for example, ozone [O_3] is formed by a chemical reaction between ROG and NO_X in the presence of sunlight). Ozone and nitrogen dioxide (NO_2) are the principal secondary pollutants.

Sources and health effects commonly associated with criteria pollutants are summarized in Table 3.2-1, Criteria Air Pollutants Summary of Common Sources and Effects.

Table 3.2-1 Criteria Air Pollutants Summary of Common Sources and Effects

Pollutant	Major Man-Made Sources	Human Health and Welfare Effects
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO_2)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Contributes to global warming and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Ozone (O_3)	Formed by a chemical reaction between volatile organic compounds (VOC) and NO_x in the presence of sunlight. VOCs are also commonly referred to as reactive organic gases. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, gasoline storage and transport, solvents, paints, and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield. Damages rubber, some textiles, and dyes.
Particulate Matter (PM_{10} & $PM_{2.5}$)	Produced by power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles, and other sources.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
Sulfur Dioxide (SO_2)	A colorless, nonflammable gas formed when fuel containing sulfur is burned; when gasoline is extracted from oil; or when metal is extracted from ore. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.

Source: CAPCOA 2019

REGULATORY FRAMEWORK

Federal and State

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the National Ambient Air Quality Standards (NAAQS) to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental

Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before an air basin can attain the standard. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10} and $PM_{2.5}$, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The NAAQS and CAAQS are presented in Table 3.2-2, Ambient Air Quality Standards.

Table 3.2-2 Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary
O_3	1 hour	0.09 ppm (180 µg/m^3)	—	Same as Primary Standard
	8 hours	0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)	
NO_2	1 hour	0.18 ppm (339 µg/m^3)	0.100 ppm (188 µg/m^3)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	
CO	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	None
	8 hours	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	
SO_2	1 hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)	—
	3 hours	—	—	0.5 ppm (1,300 µg/ m^3)
	24 hours	0.04 ppm (105 µg/m^3)	0.14 ppm (for certain areas)	—
	Annual	—	0.030 ppm (for certain areas)	—
PM_{10}	24 hours	50 µg/m^3	150 µg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m^3	—	
$PM_{2.5}$	24 hours	—	35 µg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m^3	12.0 µg/m^3	15.0 µg/m^3
Lead	30-day Average	1.5 µg/m^3	—	—
	Calendar Quarter	—	1.5 µg/m^3 (for certain areas)	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 µg/m^3	
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m^3)	—	—
Vinyl chloride	24 hours	0.01 ppm (26 µg/m^3)	—	—

Table 3.2-2, continued

Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary
Sulfates	24 hours	25 µg/m^3	—	—
Visibility-reducing particles	8 hours (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016

Notes: µg/m^3 = micrograms per cubic meter; CO = carbon monoxide; mg/m^3 = milligrams per cubic meter; NO_2 = nitrogen dioxide; O_3 = ozone; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; ppm = parts per million by volume; SO_2 = sulfur dioxide

San Diego County Regional Air Quality Strategy

The SDAPCD is the local agency responsible for the administration and enforcement of air quality regulations in San Diego County. The air district regulates most air pollutant sources, except for motor vehicles, marine vessels, aircraft, and agricultural equipment, which are regulated by CARB or the US Environmental Protection Agency. State and local government projects, as well as projects proposed by the private sector, are subject to SDAPCD requirements if the sources are regulated by the district. Additionally, the SDAPCD, along with CARB, maintains and operates ambient air quality monitoring stations at numerous locations throughout San Diego County. These stations are used to measure and monitor criteria and toxic air pollutant levels in the ambient air.

The SDAPCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB; refer to Table 3.2-3, San Diego Basin Attainment Status by Pollutant. The San Diego County Regional Air Quality Strategy (RAQS) was initially adopted in 1992. The RAQS outlines the air district's plans and control measures designed to attain the state air quality standards for ozone. The SDAPCD has also developed input to the State Implementation Plan (SIP), which is required under the federal Clean Air Act for pollutants that are designated as being in nonattainment of the NAAQS for the basin.

Table 3.2-3 San Diego Air Basin Attainment Status by Pollutant

Criteria Pollutant	Federal Designation	State Designation
Ozone (8-Hour)	Nonattainment	Nonattainment
Ozone (1-Hour)	Attainment *	Nonattainment
Carbon Monoxide	Attainment	Attainment
PM_{10}	Unclassifiable **	Nonattainment

Table 3.2-3, continued

Criteria Pollutant	Federal Designation	State Designation
$PM_{2.5}$	Attainment	Nonattainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	No Federal Standard	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Visibility	No Federal Standard	Unclassified

Notes:
* The federal 1-hour standard of 12 pphm [parts per hundred million] was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in State Implementation Plans.
** At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.
Source: SDAPCD 2020

The RAQS relies on information from CARB and SANDAG, such as mobile and area source emissions, as well as information from local jurisdictions regarding projected growth, to project future emissions and establish the strategies necessary for the reduction of emissions through regulatory controls. Projects that propose development consistent with the growth anticipated by the RTP/SCS would be consistent with the RAQS. In the event that a project proposes development which is less intensive than anticipated in the RAQS, the project would likewise be consistent with the strategy. If a project proposes development that is greater than that anticipated in the growth projections, the project could conflict with the RAQS and the SIP and could have a potentially significant impact on air quality.

The SIP relies on the same information from SANDAG to develop emissions inventories and emissions reduction strategies that are included in the attainment demonstration for the air basin. The plan also includes rules and regulations that have been adopted by the SDAPCD to control emissions from stationary sources. These SIP-approved rules may be used as guidelines to determine whether a project's emissions would have the potential to conflict with the SIP and thereby hinder attainment of the NAAQS for ozone.

SDAPCD Measures to Reduce Particulate Matter in San Diego County

In 2005, the SDAPCD adopted the *Measures to Reduce Particulate Matter in San Diego County*. This document identifies fugitive dust as the major source of directly emitted particulate matter in the county, with mobile sources and residential wood combustion as minor contributors. Data on $PM_{2.5}$ source apportionment indicates that the main contributor to $PM_{2.5}$ in the county is combustion organic carbon, followed closely by ammonium sulfate and ammonium nitrate from combustion sources. The main contributors to PM_{10} include resuspended soil and road dust from unpaved and paved roads, construction and demolition sites, and mineral extraction and

processing. Based on the report's evaluation of control measures recommended by CARB to reduce particulate matter emissions, the SDAPCD adopted Rule 55, Fugitive Dust Control, in June 2009. The SDAPCD requires that construction activities implement the measures listed in Rule 55 to minimize fugitive dust emissions. Rule 55 requires the following:

1. No person shall engage in construction or demolition activity in a manner that discharges visible dust emissions into the atmosphere beyond the property line for a period or periods aggregating more than 3 minutes in any 60-minute period.

2. Visible roadway dust as a result of active operations, spillage from transport trucks, erosion, or track-out/carry-out shall be minimized by the use of any of the equally effective track-out/carry-out and erosion control measures listed in Rule 55 that apply to the project or operation. These measures include track-out grates or gravel beds at each egress point; wheel-washing at each egress during muddy conditions; soil binders, chemical soil stabilizers, geotextiles, mulching, or seeding; watering for dust control; and using secured tarps or cargo covering, watering, or treating of transported material for outbound transport trucks. Erosion control measures must be removed at the conclusion of each workday when active operations cease, or every 24 hours for continuous operations.

In addition, the SDAPCD established Rule 20.2, which outlines the screening criteria for the preparation of air quality impact assessments (AQIA). Should emissions be found to exceed these thresholds, additional modeling is required to demonstrate that the project's total air quality impacts are below the state and federal ambient air quality standards. These screening thresholds for construction and daily operations are shown in Table 3.2-4, Screening Thresholds for Criteria Pollutants.

Table 3.2-4 Screening Thresholds for Criteria Pollutants

Pollutant	Total Emissions (Pounds per Day)	Total Emissions (Tons per Year)
Construction Emissions		
Respirable Particulate Matter (PM_{10} and $PM_{2.5}$)	100 and 55	15
Nitrogen Oxide (NO_x)	250	40
Sulfur Oxide (SO_x)	250	40
Carbon Monoxide (CO)	550	100
Volatile Organic Compounds (VOCs)	75	40
Reactive Organic Gases (ROG)	75	40

Table 3.2-4, continued

Pollutant	Total Emissions (Pounds per Day)	Total Emissions (Tons per Year)
Operational Emissions		
Respirable Particulate Matter (PM_{10} and $PM_{2.5}$)	100 and 55	15
Nitrogen Oxide (NO_x)	250	40
Sulfur Oxide (SO_x)	250	40
Carbon Monoxide (CO)	550	100
Lead and Lead Compounds	3.2	0.6
Volatile Organic Compounds (VOCs)[1]	75	40
Reactive Organic Gases (ROG) SCAQMD	75	40

Notes: 1) Since the SDAPCD does not have AQIA threshold for emissions of VOCs, analysis for this project uses the VOC threshold from the South Coast Air Quality Management District (SCAQMD).
Source: Ldn Consulting, 2020a (Appendix C)

Other SDAPCD Rules and Regulations

As discussed above under Regional Air Quality Strategy, state law dictates that local air districts such as the SDAPCD have primary responsibility for controlling emissions from non-mobile (stationary) sources. The stationary source control measures identified in the RAQS and the SIP have been developed by the air district into regulations through a formal rulemaking process. Rules are developed to set limits on the amount of emissions from various types of sources and/or by requiring specific emissions control technologies. Following rule adoption, a permit system is used to impose controls on new and modified stationary sources and to ensure compliance with regulations by prescribing specific operating conditions or equipment on a source.

SDAPCD Regulation XIV (Title V Operating Permits) contains the requirements for implementing the Title V permit program. The program requires all major sources of criteria air contaminants, all major sources of hazardous air pollutants, all sources that emit more than 100 tons per year of any regulated air contaminant, and certain other specified sources to obtain Title V permits. Permits are issued pursuant to Regulation XIV and incorporate state and local requirements that are contained in existing SDAPCD permits for these sources. Examples of operations that require permits are surface coating operations, adhesive materials application, automotive refinishing operations, dry cleaning operations, fiberglass or plastic product manufacturing, and gas stations.

The SDAPCD also implements New Source Review (NSR) in the air basin. Prior to the installation of new, modified, relocated, or replacement equipment that results in an increase of air pollution emissions, the SDAPCD requires that an Authority to Construct be obtained and that the equipment be evaluated in accordance with applicable NSR rules. A Permit to Operate from the

SDAPCD would be required to authorize operation or use of the equipment. If such equipment would exceed air pollutant thresholds, it must use Best Available Control Technology (BACT) to reduce emissions. BACT definitions and requirements are outlined in SDAPCD Rule 20.1, NSR–General Provisions.

It is difficult to ensure that new or modified sources do not interfere with attainment or maintenance of the established air quality standards for ozone. Since ozone is a secondary pollutant (i.e., ozone is not directly emitted, but results from complex chemical reactions in the atmosphere from precursor pollutants), control of the precursors is required. Control of emissions of volatile organic compounds (VOCs) (also known as reactive organic gases, or ROG) and nitrogen oxides, the ozone precursors, is essential. The SDAPCD adopted Rule 67.0.1, Architectural Coatings, which establishes VOC content limits for architectural coatings, in 2015.

Additionally, SDAPCD Rule 1210, Toxic Air Contaminant Public Health Risks–Public Notification and Risk Reduction, implements the public notification and risk reduction requirements of the California Air Toxics "Hot Spots" Act (AB 2588) and requires facilities to reduce risks to acceptable levels within five years.

Adopted in 1996 and mostly recently revised in 2019, Rule 1200, Toxic Air Contaminants - New Source Review, requires evaluation of potential health risks for any new, relocated, or modified emission units that may increase emissions of one or more toxic air contaminant(s). In regard to an increase of cancer risk, Rule 1200 requires the following:

- **T-BACT Not Applied.** The increase in maximum incremental cancer risk at every receptor location is equal to or less than one in one million for any project for which new, relocated, or modified emission units that increases maximum incremental cancer risk are not equipped with T-BACT; and
- **T-BACT Applied.** Except as provided in (d)(1)(iii), the increase in maximum incremental cancer risk at every receptor location is equal to or less than 10 in one million for any project for which all new, relocated, or modified emission units that increases maximum incremental cancer risk are equipped with T-BACT (SDAPCD 2019).

Compliance with this rule does not relieve a person from having to comply with other applicable requirements in these rules and regulations, or state and federal law.

SDAPCD Rule 51 - Odor Impacts

The State of California Health and Safety Code, Division 26, Part 4, Chapter 3, Section 41700 SDAPCD Rule 51 (Public Nuisance), and the City's Municipal Code prohibit emissions from any source in such quantities of air contaminants or other material that cause injury, detriment,

nuisance, or annoyance to the public health or damage to property. Projects required to obtain permits from SDAPCD are evaluated by SDAPCD staff for potential odor nuisance, and conditions may be applied (or control equipment required) where necessary to prevent occurrence of public nuisance.

SDAPCD Rule 51 also prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. A project that proposes a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors. Odor issues are subjective by the nature of odors themselves and due to the fact that their measurements are difficult to quantify. Therefore, this guideline is qualitative and focuses on existing and potential surrounding uses and the location of sensitive receptors.

Local

City of Encinitas General Plan

The *General Plan* is the primary source of long-range planning and policy direction used to guide growth and preserve the quality of life in the City of Encinitas. The Encinitas General Plan states that a goal of the City is to analyze proposed land uses to ensure that the designations would contribute to a proper balance of land uses within the community. The relevant goals and policies for the project include:

Circulation Element

Policy 3.3: Create a safe and convenient circulation system for pedestrians.

Policy 3.11: The City will strive to implement a safe, direct, and convenient circulation system for commuting and recreational bicycle traffic. The City will support the development of additional bicycle facilities in the Coastal Zone, including the following:

- All Circulation Element roads will include provisions for bicycle lanes unless precluded by design and safety considerations in which cases, alternative routes shall be provided to form a continuous network.
- The provision of secure bicycle storage facilities at all beaches designated for high and moderate levels of use.
- The installation of bicycle and surfboard racks on all buses serving the Coastal Zone.

Resource Management Element

GOAL 5: **The City will make every effort to participate in programs to improve air and water quality in the San Diego region.**

Policy 5.1: The City will monitor and cooperate with the ongoing efforts of the U. S. Environmental Protection Agency, the San Diego Air Pollution Control District, and the State of California Air Resources Board in improving air quality in the regional air basin. The City will implement appropriate strategies from the San Diego County SIP which are consistent with the goals and policies of this plan.

GOAL 13: **Create a desirable, healthful, and comfortable environment for living while preserving Encinitas, unique natural resources by encouraging land use policies that will preserve the environment.**

Policy 13.1: The City shall plan for types and patterns of development which minimize water pollution, air pollution, fire hazard, soil erosion, silting, slide damage, flooding and severe hillside cutting and scarring.

GOAL 15: **The City will make every effort to conserve energy in the City thus reducing our dependence on fossil fuels.**

Policy 15.1: The City will encourage the use of alternate energy systems, including passive solar and architectural and mechanical systems, in both commercial and residential development.

Policy 15.2: The patterns of proposed subdivisions and the orientation and design of structures on lots shall be designed with the objective of maximizing the opportunities for solar energy use and energy conservation.

Policy 15.3: Energy conserving construction standards and requirements shall be enforced in the field inspection of new construction.

IMPACT ANALYSIS AND MITIGATION MEASURES

Thresholds of Significance

The State of California has developed guidelines to address the significance of air quality impacts based on Appendix G of the CEQA Guidelines. The proposed project would have a significant impact related to air quality if it would:

1. Conflict with or obstruct the implementation of the applicable air quality plan.

2. Expose sensitive receptors to substantial pollutant concentrations.
3. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.
4. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.

PROJECT IMPACTS AND MITIGATION

CONFLICT WITH AIR QUALITY PLAN

Impact 3.2-1 **The project would not conflict with or obstruct implementation of the applicable air quality plan. Impacts would be less than significant.**

The project site is located in the SDAB and is regulated by the SDAPCD as described above. The City of Encinitas recently adopted the Housing Element Update (HEU) to the General Plan that included updated employment and residential growth projections. The HEU Environmental Assessment determined that the HEU would result in a cumulative impact due to the increase in residential units which were not accounted for in the RAQS and SIP at that time. As part of the mitigation requirements of the HEU EA, the City provided a revised housing forecast to SANDAG to ensure that any revisions to the residential and employment growth projections used by SDAPCD are accounted for in the RAQS and the SIP (refer to Section 3.9, Land Use and Planning).

Air quality is an inherently cumulative issue with the SDAB being the geographic scope of analysis. Recognizing this, the SDAPCD's emissions thresholds are devised to regulate air basin-wide emissions at the project level. If project's fall below these thresholds, they are determined not to contribute significantly to cumulative air basin-wide emissions, and accordingly would not result in a significant project impact.

Because the proposed project falls below thresholds for emissions of criteria air pollutants, the project would not conflict with or obstruct implementation of the RAQS and SIP. Impacts would be **less than significant.**

Mitigation Measures: None required.

Level of Significance: Less than significant.

EXPOSE SENSITIVE RECEPTORS TO POLLUTANTS

Impact 3.2-2 The project would not expose sensitive receptors to substantial pollutant concentrations. Impacts would be less than significant.

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are schools, hospitals, and daycare centers (California Health and Safety Code § 42705.5(a)(5)). CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

The nearest sensitive receptor is Capri Elementary School located at 941 Capri Road (approximately 0.6 miles northwest of the project site). However, to be conservative, existing residences south and west of the project site were also considered sensitive receptors for the purpose of this analysis. According to the SDACPD's Rule 1200, a project would result in a significant impact to a sensitive receptor if the project's emissions of any toxic air contaminant resulted in a cancer risk greater than 10 in 1 million.

Construction

Emissions of pollutants, such as fugitive dust and heavy equipment exhaust, that are generated during construction are generally highest near the construction site. Emissions from project construction were estimated using the California Emissions Estimator Model (CalEEMod). CalEEMod is the state-wide accepted modeling software used for preparing air quality analysis. The model utilizes project-specific inputs including location, construction schedule, and proposed uses. When project-specific information is not available or known, CalEEMod includes built in default values which are industry-accepted standards to appropriately model and estimate emissions. To estimate construction emissions, the following phases were modeled: demolition, site preparation, grading, paving, building construction, and architectural coatings application. Demolition and construction of the project is expected to begin in 2021 and be completed in 2023. CalEEMod provides default assumptions regarding horsepower rating, load factors for heavy equipment, and hours of operation per day. Default assumptions in CalEEMod and assumptions for similar projects were used to represent operation of heavy construction equipment. Construction calculations in CalEEMod utilize the numbers and types of equipment shown in Table 3.2-5.

Table 3.2-5 Expected Construction Equipment

Equipment Identification	Proposed Start	Proposed Complete	Quantity
Demolition	06/01/2021	06/30/2021	
Concrete/Industrial Saws			1
Excavators			3
Rubber Tired Dozers			2
Site Preparation	07/01/2021	07/21/2021	
Rubber Tired Dozers			3
Tractors/Loaders/Backhoes			4
Grading	07/22/2021	09/30/2021	
Excavators			2
Graders			1
Rubber Tired Dozers			1
Scrapers			2
Tractors/Loaders/Backhoes			2
Paving	09/01/2021	09/28/2021	
Pavers			2
Paving Equipment			2
Rollers			2
Building Construction	10/01/2021	01/20/2023	
Cranes			1
Forklifts			3
Generator Sets			1
Tractors/Loaders/Backhoes			3
Welders			1
Architectural Coating	10/01/2022	01/13/2023	
Air Compressors			1

Notes: This equipment list is based upon equipment inventory within CalEEMod. The quantity and types are based upon assumptions provided by the project applicant.
Source: Ldn Consulting, 2020a (Appendix C)

In addition to calculating emissions from heavy construction equipment, CalEEMod contains calculation modules to estimate emissions of fugitive dust, based on the amount of earthmoving or surface disturbance required; emissions from heavy-duty truck trips or vendor trips during construction activities; emissions from construction worker vehicles during daily commutes; emissions of ROG from paving using asphalt; and emissions of ROG during application of architectural coatings. As part of the project, it was assumed that standard dust control measures (watering three times daily; using soil stabilizers on unpaved roads) and architectural coatings that comply with SDAPCD Rule 67.0.1 (assumed to meet a VOC content of 50 grams per liter (g/l) for flat coatings and 100 g/l for nonflat coatings) would be used during construction.. Further, as a project component, the proposed project would utilize Tier 4 diesel construction equipment with diesel particulate filters. Table 3.2-6, Expected Construction Emissions Summary, provides the detailed emission estimates for each year of construction, as calculated with CalEEMod (Appendix C).

Table 3.2-6 Expected Construction Emissions Summary (pounds per day)

Year	ROG	NO_x	CO	SO_2	PM_{10} (Dust)	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Dust)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)
2021	1.49	14.13	52.44	0.10	18.21	0.05	18.22	9.97	0.05	9.98
2022	43.66	6.53	26.39	0.06	2.31	0.03	2.34	0.62	0.03	0.65
2023	43.59	5.71	25.88	0.06	2.31	0.02	2.33	0.62	0.02	0.64
Maximum	*43.66*	*14.13*	*52.44*	*0.10*	*18.21*	*0.05*	*18.22*	*9.97*	*0.05*	*9.98*
Significance Threshold (lbs/day)	75	250	550	250	-	-	100	-	-	55
SDAPCD Impact?	No	No	No	No	-	-	No	-	-	No

Source: Ldn Consulting, 2020a (Appendix C)

As shown in Table 3.2-6, emissions of criteria pollutants during construction would be below the thresholds of significance for each year of construction. As project criteria pollutant emissions during construction would not exceed SDAPCD air quality standards and would be temporary, no significant impact would occur and no mitigation measures are required.

Health Risk

As part of the *Air Quality Assessment*, a screening-level health risk assessment was conducted to determine the project's potential to generate health risk impacts on nearby sensitive receptors due to construction and operation/occupancy activities. The analysis used a worst-case scenario for PM_{10} from on-site construction exhaust. As such, it was determined that the project would result in an annual concentration of 0.0068 µg/m^3.

Based on this worst-case scenario, the inhalation cancer risk was calculated as 1.42 per million exposed at the point of maximum exposure of approximately 682 feet away as predicted by the AERSCREEN model (Appendix C). As mentioned previously, the proposed project would utilize Tier 4 diesel equipment with diesel particulate filters, which is considered a T-BACT; therefore, the threshold for significance under SDAPCD is 10 per million. As such, the project is consistent with SDAPCD's Rule 1200 and; therefore, the increase in cancer risk would not reach the level of significance under CEQA. Impacts in this regard would be less than significant.

Diesel exhaust may also contribute to acute and chronic non-cancer health risks. Non-cancer risks, with respect to diesel particulate matter, are determined by the Health Hazard Index developed by the California's Office of Environmental Health Hazard Assessment (OEHHA). To calculate the hazard index value, a project's estimated diesel particulate matter concentration is divided by the corresponding reference exposure levels which for diesel particulate matter is 5 µg/m^3 (Ldn 2020a).

If a project's Health Hazard Index value equals or exceeds one, a health hazard is presumed to exist. Analysis of the non-cancer health risks determined that the project would result in a Health Hazard Index of 0.017 (refer to Appendix C for additional details). Since the index number is less than one, non-cancer risks would not occur (Appendix C). Therefore, the project would not expose sensitive receptors to substantial pollutant concentrations during construction. Impacts would be **less than significant**.

Operations/Occupancy

Operational impacts would include impacts associated with vehicular traffic, as well as area sources such as energy use (i.e., natural gas), water and wastewater, landscaping maintenance, consumer products use (i.e., household cleaners, automotive products), and architectural coatings use for maintenance purposes. Operational impacts associated with vehicular traffic and area sources were estimated using CalEEMod. As described in Section 3.12, Transportation, the proposed project would generate approximately 1,690 net average daily trips once the project is fully operational. The expected daily pollutant generation can be calculated utilizing the product of the average daily miles within the City and the expected emissions inventory. Operational daily pollutant emissions are shown in Table 3.2-7.

Table 3.2-7 Expected Daily Pollutant Generation (pounds per day)

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Summer Scenario						
Area	6.94	0.24	20.63	0.00	0.11	0.11
Energy	0.08	0.73	0.38	0.00	0.06	0.06
Mobile	2.11	7.56	21.14	0.08	6.87	1.87
Total (lb/day)	**9.13**	**8.53**	**42.15**	**0.08**	**7.04**	**2.05**
SDAPCD Thresholds	75	250	550	250	100	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Winter Scenario						
Area	6.94	0.24	20.63	0.00	0.11	0.11
Energy	0.08	0.73	0.38	0.00	0.06	0.06
Mobile	2.03	7.72	21.17	0.07	6.87	1.87
Total (lb/day)	**9.06**	**8.68**	**42.18**	**0.08**	**7.04**	**2.05**
SDAPCD Thresholds	75	250	550	250	100	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Ldn Consulting, 2020a (Appendix C)

Table 3.2-7 presents the results of the operational emission calculations, in pounds per day, and includes a comparison with the significance criteria. Based on the estimates of the emissions associated with project operations, the emissions of all criteria pollutants would be below the significance thresholds. As such, the project would not expose sensitive receptors to substantial pollutant concentrations during operations/occupancy. Impacts would be **less than significant**.

Additionally, air pollutant emissions related to project-generated traffic have the potential to create new, or worsen existing, localized air quality violations with respect to carbon monoxide known as "hot spots." The City recommends using the County's screening thresholds to conduct hot spot analyses when a project would add vehicular trips to an intersection that operates at Level of Service (LOS) E or F, the addition of project trips re-classify an intersection from an acceptable LOS to LOS E or F, or when total intersection peak-hour trips exceed 3,000 vehicles.

According to the *Transportation Impact Study* (see Appendix O-1), the project would add trips to two intersections currently experiencing LOS of E or worse: (1) Garden View Road/Leucadia Boulevard and (2) El Camino Real/Leucadia Boulevard. Both intersections currently operate with 3,000 vehicles per hour. Under the worst-case scenario, the intersection of El Camino Real/ Leucadia Boulevard would operate with over 6,000 vehicles during the PM peak-hour. As such, traffic from the proposed project has the potential to generate CO emissions in excess of the CAAQS.

For purposes of this analysis, the more stringent CAAQS standard was used for the 1-hour standard (CO limits of 9 parts per million) and 8-hour standard (CO limits of 20 parts per million). As shown in Table 3.2-8, Expected Carbon Monoxide Hot Spot Concentration Levels, the 1-hour and 8-hour CO levels at the El Camino Real/Leucadia Boulevard would not exceed the CAAQS thresholds and a significant impact would not occur. Similarly, since all other remaining intersections have lower traffic volumes, a less than significant impact would also occur.

Additionally, it should be noted that the Sidonia Secondary Access Option would add the same number of trips to the intersection of El Camino Real/Leucadia Boulevard; thus, impacts associated with this option would also be less than significant. Therefore, implementation of the project would not create or contribute to an existing CO hot spot and impacts would be **less than significant**.

Table 3.2-8 Expected Carbon Monoxide Hot Spot Concentration Levels

Intersection	Vehicles Per Hour	Predicted Concentration PPM	
	PM	1-hour	8-hour
El Camino Real/Leucadia Boulevard	6,368	3.4	2.4
CAAQS - Significant Thresholds?		20	9
Significant		No	No

Sources: Ldn Consulting, 2020a (Appendix C).
Emission levels taken from EMFAC 2017. Traffic Volumes obtained from the *Transportation Impact Study*, Chen Ryan & Associates (Appendix O-1)

Mitigation Measures: None required.

Level of Significance: Less than significant.

OTHER EMISSIONS SUCH AS THOSE LEADING TO OBJECTIONABLE ODORS

Impact 3.2-3	**The project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. Impacts would be less than significant.**

Individual responses to odors are highly variable and can result in various effects, including psychological (i.e., irritation, anger, or anxiety) and physiological (i.e., circulatory and respiratory effects, nausea, vomiting, and headache). Generally, the impact of an odor results from a variety of interacting factors such as frequency, duration, offensiveness, location, and sensory perception. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The sensory perception refers to the perceived intensity of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity they are engaged in; and the sensitivity of the impacted receptor.

CARB's (2005) *Air Quality and Land Use Handbook* identifies the sources of the most common odor complaints received by local air districts. Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding.

Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from vehicles and equipment exhaust. Such odors would occur on a short-term, temporary basis. Further, such odors would disperse rapidly from the project site and would generally occur at levels that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be less than significant**.**

Agricultural operations associated with the proposed project may include various diesel-powered vehicles and equipment used on the property. These sources are mobile and transient in nature, and the distance to the closest off-site sensitive receptors would provide for dilution of odor-producing constituent emissions. Such odors dissipate rapidly and are typically

temporary. Therefore, project operations in this regard would not result in emissions leading to odors that would adversely affect a substantial number of people.

Although the proposed project would include composting of organic material and animal raising on-site as part of the organic farm, these activities are consistent with the underlying agricultural zoning of the property, as well as the provisions within the Encinitas Ranch Specific Plan. Additionally, any such composting and animal operations would be located within the easternmost portion of the farm use area, in the northeast of the project site. These activities would not generate offensive odors to sensitive residential receptors because composting and animal operations would be located over 500 feet from the nearest residentially-zoned sensitive receptor on Sidonia Street (refer to Figure 2.0-5, Conceptual Site Plan) , and because east of the project site is an existing golf course . As a result, the project would not result in a significant odor impact from operation of the organic farm.

Additionally, the project would reduce the area of agricultural operations on-site by more than 50 percent as compared to existing conditions and would therefore be expected to utilize fewer pesticides than the current agricultural operation. The project would also implement natural growing methods and permaculture techniques that would avoid the likelihood of exposure of the community or surrounding land uses to any harmful emissions from pesticide use.

Therefore, the proposed project would not result in emissions (such as those leading to odors) that would adversely affect a substantial number of people. Impacts would be **less than significant**.

Mitigation Measures: None required.

Level of Significance: Less than significant.

CUMULATIVE IMPACTS

Impact 3.2-4	**The project would not result in a significant impact from a net increase of any criteria pollutant for which the region is nonattainment under an applicable federal or state ambient air quality standard or other cumulative impacts related to air quality. Impacts would be less than cumulatively considerable.**

Geographic Scope

Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the SDAPCD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether the

project's individual emissions would have a cumulatively significant impact on air quality. Cumulative projects that would have the potential to be considered in a cumulative context with the project's incremental contribution, and that are included in the analysis of cumulative impacts relative to air quality, are identified in Table 3-1 and Figure 3.0-1 in Section 3.0, Environmental Analysis, of this EIR. Potential cumulative air quality impacts may potentially result when the emissions from cumulative projects combine to degrade air quality conditions below attainment levels for the SDAB, delay attainment of air quality standards, affect sensitive receptors, or subject surrounding areas to objectionable odors. The cumulative study area for air quality includes the SDAB, which is contiguous with San Diego County because air quality is evaluated at the air basin level. Cumulative impacts on sensitive receptors and odors are more localized and include surrounding areas close to the project site.

Potential Cumulative Impacts

As shown in Table 3.2-3, the SDAPCD is in federal nonattainment status for ozone (8-hour) and state nonattainment status for ozone (8-hour and 1-hour), PM_{10}, and $PM_{2.5}$. Projects that emit these pollutants or their precursors (i.e., VOC and NO_x for ozone) potentially contribute to poor air quality. The SDAPCD significance thresholds consider the cumulative impact of a project that adds emissions to the entire air basin, in this case a basin already in nonattainment for several criteria. As indicated in Table 3.2-6 and Table 3.2-7, construction and operations/occupancy emissions would not exceed the SDAPCD significance thresholds. Other projects included in the cumulative project list would similarly be required to evaluate if such projects would exceed significance thresholds and contribute to an overall cumulative air impact in the basin.

Based on the *Transportation Impact Study* (Appendix O-1), the nearest cumulative projects to the project site are the Sunshine Gardens Apartments, Sanderling Waldorf School and the Ocean View Development. The Sanderling Waldorf School and Sunshine Gardens projects are located approximately 4,900 feet south of the project site and the Ocean View development is located further to the south. Additionally, these projects are of lesser size than the proposed project. As the project health risk screening model predicted that diesel exhaust during construction would produce the highest concentrations approximately 682 feet from the project and would generate a cancer risk of 1.42 per one million exposed, cumulative contributions from these cumulative projects would not be large enough or have a construction intensity to cause the risk to exceed 10 per one million exposed. Additionally, as construction emissions identified in Table 3.2-6 are low relative to standards, simultaneous construction of all three projects would cause a less than significant cumulative impact on air quality (refer also to Appendix C).

The thresholds were developed to address criteria pollutants on an air-basin scale because air quality is an inherently cumulative issue. Because the proposed project is below these thresholds, it therefore would not result in a considerable contribution to regional air quality impacts. As

noted under Impact 3.2-1 above, the Housing Element EA concluded that the buildout of housing identified in the Housing Element would result in an inconsistency with the RAQS. Per the mitigation requirements of the Housing Element EA, the City provided SANDAG with updated housing and land use data necessary to update the RAQS. Until such time that the updated RAQS is released to incorporate the updated City land use data, a significant cumulative impact with respect to this threshold exists. However, as detailed above, the proposed project's emissions fall below established thresholds and therefore the project's contribution to this cumulative impact would be **less than cumulatively considerable**.

Mitigation Measures: None required.

Level of Significance: Less than cumulatively considerable.

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